

### **Remarks**

Claims 1-11 were pending in this application. Claims 12-15 are new. Support for the newly added claims may be found throughout the specification and the original, for example, on page 9, lines 20-23 and page 19, lines 13-16. After entry of this amendment, Claims 1-15 are pending.

No new matter is introduced by the foregoing amendments. Consideration and allowance of the pending claims are requested.

#### **Rejections under 35 U.S.C. §102(b)**

Claims 1-11 stand rejected under 35 U.S.C. §102(b), as allegedly (inherently) anticipated by Alexandrov *et al.* (EP 1033405, Published June 9, 2000 hereinafter Alexandrov *et al.*). Applicants respectfully traverse this rejection for at least the following reasons.

The Office action alleges that the property of drought tolerance of a transgenic plant expressing a polynucleotide sequence of SEQ ID NO: 33003 is inherent to the sequence disclosed in the reference. If anticipation is based upon the inherent teaching of a prior art reference, the Patent Office must provide a rationale or evidence tending to show inherency. “[T]o establish inherency the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be recognized by persons of ordinary skill.” (emphasis added) *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Inherency may not be established by mere probability or possibilities; “the mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Id.*

Presently, the Office has failed to satisfy the criteria set forth by *In re Robertson*. Although the Office cites multiple pages within Alexandrov *et al.* to support the pending rejection, nowhere does Alexandrov *et al.* disclose, suggest or teach “a transgenic plant comprising a plant transformation vector comprising a nucleotide sequence that encodes a DRO2 polypeptide comprising an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2 and including a DoF-type zinc finger domain, wherein said transgenic plant has increased drought tolerance to control plants with drought tolerance” as presently claimed. In particular, Alexandrov *et al.* do not

reveal a transgenic plant with increased drought tolerance including a DRO2 polypeptide with at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2. Therefore, the teachings of Alexandrov *et al.* are insufficient to establish anticipation based upon the principal of inherency because the extrinsic evidence (Alexandrov *et al.*) does not make it clear that the missing descriptive matter (*e.g.*, drought tolerance) is necessarily present in the thing (*e.g.*, SEQ ID NO:2) described in the reference, and that it would be recognized by persons of ordinary skill.

The Office also cites Harper *et al.* to support a finding of inherent anticipation. For example, the Office alleges that Harper *et al.* “disclose a stress (includes drought) tolerant transgenic plant and a method of making said transgenic plant comprising introducing and expressing a polynucleotide sequence of SEQ ID NO: 1986 which has 100% sequence identity to instant SEQ ID NO: 1 which encodes instant SEQ ID NO: 2.” (Office Action, pages 3 and 4). Applicants respectfully disagree.

Although Applicants agree that Harper *et al.* disclose a polynucleotide sequence with a SEQ ID NO: 1986, Harper *et al.* do not teach, suggest, or disclose a drought tolerant transgenic plant including such polynucleotide sequence. For example, transcriptional profiling studies performed by Harper *et al.* indicate that levels of transcripts with a polynucleotide sequence of SEQ ID NO: 1986 were not increased in plants treated mannitol (osmotic stress) alone (Tables 11, 12 and 13). In addition, such transcript levels were not reported to be more abundant in plants given a combination of osmotic stress with other stress conditions including cold and mannitol (Tables 15, 16 and 17), salt and mannitol (Tables 21, 22 and 23) or cold, salt and mannitol (Tables 24, 25 and 26). Thus, the gene with SEQ ID NO: 1986 was not observed to be responsive to drought-like stresses (such as mannitol treatment). Furthermore, transcripts of SEQ ID NO: 1986 were not induced by cold alone (Tables 3, 4 and 5), or salt alone (Tables 7, 8 and 9). Therefore, a drought tolerant transgenic plant including a polynucleotide sequence with a SEQ ID NO: 1986 is not taught, suggested or disclosed by Harper *et al.*

Since transcripts encoding SEQ ID NO: 1986 are induced only when plants are exposed to stress induced by salt and cold, and not when plants are exposed to osmotic stress induced by mannitol, the Applicants note that the Office appears to be equating stress induced by salt and cold with drought stress. Salt stress caused by saline treatment not only causes an osmotic adjustment that plants have to respond to, but also induces an ionic adjustment that is not caused by drought stress. By contrast,

osmotic stress caused by mannitol treatment results in an osmotic adjustment, but, like drought stress, does not cause the ionic adjustment. The scientific community recognizes the distinction between salt and drought stress (See, Knight *et al.* 1997 *Plant J.* 12:1067-1078 and Gao *et al.* 2004 *Plant Phys.* 134:898-908; provided herewith as Exhibits I and II, respectively). For example, Knight *et al.* suggest that differences between the effects of salt and mannitol may be due to the fact that mannitol cannot enter the cell whereas sodium and chloride ions may be transported into the vacuole, thus reducing the potentially high osmotic difference between cytosol and apoplast.” Knight *et al.*, 1997 *Plant J.* 12:1067-1078. Evidence of this distinction may even be found within the Harper reference itself. For example, Harper *et al.* reported 206 genes responsive to salt treatment (Table 7) and 273 sequences responsive to salt and cold (Table 18) that were non-overlapping with 106 sequences responsive to osmotic (mannitol treatment) treatment (Table 11). Thus, Applicants assert that the treatment in Harper *et al.* that most closely mimics drought stress is osmotic stress (such as, mannitol treatment), not salt stress. Consequently, Harper *et al.* do not teach, suggest or disclose the gene with SEQ ID NO: 1986 to be responsive to drought-like stresses (such as mannitol treatment) whereby a mannitol alone treatment (Tables 11, 12 and 13), a combined cold and mannitol treatment (Tables 15, 16 and 17), a combined salt and mannitol treatment (Tables 21, 22 and 23) or a combined cold, salt and mannitol treatment (Tables 24, 25 and 26) does not result in increased levels of SEQ ID NO: 1986 transcripts.

Accordingly, Harper *et al.* not only demonstrate that the missing descriptive matter (drought tolerance) is not necessarily present in the thing described (SEQ ID NO: 1986/ SEQ ID NO: 33003), but also clearly indicates that the missing descriptive matter (drought tolerance) would not have been recognized by one of skill in the art based on the teachings of Harper *et al.* (or any of the other cited references). One of ordinary skill in the art would have seen that osmotic stress (mannitol treatment) did not regulate transcriptional levels of transcripts with SEQ ID NO: 1986 and would have instead chosen one of the other 106 sequences identified to be regulated by mannitol treatment to investigate for possibly imparting drought tolerance. Moreover, the studies performed by Harper *et al.* in no way suggest (and in fact, teach away from) the use of a gene with SEQ ID NO: 1986 to impart drought tolerance.

Anticipation (including inherency) has failed to be established. As such, Applicants respectfully request that the rejection under 35 U.S.C. §102(b) be withdrawn.

Newly added claims 12-15

Newly added claims 12-15 are believed to be free of the cited art at least for the same reasons presented above for claims 1-11.

**Conclusion**

Applicants respectfully submit that the claims submitted herewith are in condition for allowance. If any issues impede the issuance of a notice of allowance, Applicants expressly request that the Examiner contact the undersigned prior to the mailing of a next substantive Office action in order to arrange a telephone interview. It is believed that a brief discussion of the merits of the present application may expedite prosecution and allowance of the claims.

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